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A NATIONAL CONSENSUS ON GUIDELINES FOR ESTABLISHMENT OF A POST-EXPOSURE NOTIFICATION PROTOCOL FOR EMERGENCY RESPONDERS F-1 169

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A NATIONAL CONSENSUS ON GUIDELINES FOR ESTABLISHMENT OF A POST-EXPOSURE NOTIFICATION PROTOCOL FOR EMERGENCY RESPONDERS

Background

Two meetings, organized by the Laboratory Centre for Disease Control (LCDC), Health Protection Branch, Health Canada, have been held in the last year to discuss Emergency Responders concerns related to occupational exposure to infectious diseases.

The **National Symposium on Risk and Prevention of Infectious Diseases for Emergency Response Personnel** was held in September, 1994. This meeting explored Emergency Responders' risks of occupational exposure to infectious diseases, pre-exposure prevention activities, and post-exposure management programs. Emergency Responders strongly believed that they have the right to be informed of specific preventive actions that could be taken post-exposure to prevent the occupational acquisition of disease. [Free copies of the proceedings are available from LCDC by calling (613) 952-5221 or fax (613) 952-6668).]

On 28 and 29 June, 1995, a **Consensus Conference on Infectious Disease Notification of Emergency Responders** was held with the objective of developing guidelines that provinces, territories, or federal agencies could use to establish Notification Protocols for Emergency Responders. The Notification Protocols will ensure that Emergency Responders are in the loop of rapid notification for contact tracing following occupational exposure to infectious diseases. Participants included Emergency Responders, (i.e., ambulance, fire, and police), representatives from provincial, territorial, and federal governments' health and labour departments, and other organizations concerned with occupational exposures of Emergency Responders (Appendix 1).

Participants at the Consensus Conference affirmed that a Notification Protocol for Emergency Responders following a potential infectious disease exposure must be part of an overall occupational exposure management program. Consensus was obtained on the guidelines that follow.

GUIDELINES FOR ESTABLISHING A NOTIFICATION PROTOCOL FOR EMERGENCY RESPONDERS

1. Criteria for Disease Inclusion

Almost everyone is exposed to infectious diseases (e.g., colds) during the course of their day-to-day activities. Although Emergency Responders have the potential to be exposed to a great variety of infectious agents, most of these agents do not pose a real threat to their health because of pre-existing immunity and/or mild symptoms. However, the emergence of new or re-emergence of previously documented infectious agents supports the development of criteria that can be used to determine which infectious diseases should be included in a formalized Notification Protocol.

Recommendations

a) Determine the inclusion or exclusion of a specific disease by evaluating the following:
   i. potential severity of illness
   ii. availability of post-exposure intervention
   iii. incidence and/or prevalence of disease
   iv. ease of transmission

b) Based on an evaluation of the above criteria, the following specific diseases* should be included in a Notification Protocol:
   i. airborne diseases: tuberculosis, meningococcal disease
   ii. bloodborne diseases: infection with human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV).

* These are essential for inclusion; however, the list is not limited to these diseases.

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2. Disease Exposure and Transmission

A **significant exposure** to an infectious disease is one in which the risk of transmission of microorganisms is relatively high. Criteria such as the type of exposure, length of exposure, and the nature of the disease help determine the significance.

a) Airborne Diseases

Tuberculosis (TB)

To be infectious, persons with TB must have active respiratory disease, usually with an uncontrolled cough. Some groups of people, e.g., aboriginals, the foreign-born, the elderly, drug users and people with HIV/AIDS, may have a higher than average rate of active TB. Estimation of the potential for occupational risk of TB transmission requires an understanding of the local incidence of TB and a case-by-case assessment of exposure situations including type of TB involved, the behaviour of the person with active TB, and the length, type, and frequency of exposure of the Emergency Responder.

A **significant occupational exposure to infectious TB** would include close and/or prolonged contact to a person with an uncontrolled cough who has active, infectious pulmonary or laryngeal TB where appropriate infection control precautions (mask, as indicated) were not in use [e.g., one-half hour transport of someone with infectious laryngeal TB (the most infectious type)].

Meningococcal disease

Susceptibility to meningococcal bacteria depends upon the type of exposure, virulence of the organism, and the effectiveness of the exposed person's immune system. Many adults have pre-existing immunity which protects them against the disease. Transmission of meningococcal bacteria usually requires direct exposure to the respiratory secretions of a person infected with meningococcal bacteria.

A significant occupational exposure to meningococcal disease would include close mucous membrane contact with an infected person's respiratory secretions, (e.g., mouth-to-mouth resuscitation, intubation by an Emergency Responder or coughing or sneezing into one's face) where appropriate infection control precautions were not in use.

b) Bloodborne Diseases

The risk of occupational acquisition of a bloodborne infection is based on three factors:

1. the risk of exposure to blood/blood products/bloody body fluids,
2. the prevalence of infection in the population, and
3. the risk of infection following a significant exposure to infected blood/bloody body fluids.

Prevalence of bloodborne pathogen infections vary, depen- ding on the city, province or region in Canada. For bloodborne disease transmission to be possible, HIV, HBV or HCV must enter the bloodstream after having penetrated the skin, e.g., via a needlestick injury, puncture wound or cut which penetrates the skin; on abraded skin; on mucous membranes, e.g., splashes to eyes, nostrils, or mouth. **Blood/bloody body fluids on intact skin is not a significant exposure**.

For HIV, the risk of infection following occupational expo- sure to HIV-infected blood is around 0.37%; for HBV, from 6% to 30%; and for HCV, from 2.7% to 10%. Worldwide, there have been 73 documented occupational seroconversions and 141 probable occupational seroconversions from exposure to HIV[1]. In the USA, there have been 43 documented seroconversions and 91 possible seroconversions for a total of 134[1]. Occupational acquisition of HBV and HCV has not been tracked as closely as HIV; national and international seroconversion statistics are not available.

Unlike HIV and HCV, the risk of acquiring HBV from a blood exposure can be reduced by HBV immunization prior to exposure and by receiving hepatitis B immune globulin and vaccine following exposure, if required.

Evaluation of a significant exposure to a bloodborne disease requires investigation of two criteria:

1. ***type of exposure*:**
   - percutaneous
   - non-intact skin
   - mucous membrane
2. ***type of body fluid from a person infected with one of the following viruses*:**

   HIV
   - blood/bloody body fluids
   - uterine/vaginal fluids or semen (unlikely in occupational setting)
   - bloody saliva related to oral surgery or dental care
   - cerebrospinal, amniotic, peritoneal, synovial, pericardial, or pleural fluids
   - following a bite if there is blood-tinged saliva

   HBV
   - blood/bloody body fluids
   - uterine/vaginal fluids or semen (unlikely in occupational setting)
   - bloody saliva related to oral surgery or dental care
   - cerebrospinal, amniotic, peritoneal, synovial, pericardial, or pleural fluids
   - following a bite with or without blood-tinged saliva

   HCV
   - blood/bloody body fluids
   - following a bite if there is blood-tinged saliva

3. Role of Emergency Response Organizations in a Notification Protocol

Preamble

All workplaces, including emergency response organizations, must implement occupational health and safety programs according to the legislation and regulations of their provincial/territorial/ federal jurisdiction. Occupational health services have the primary responsibility to carry out the health

component of these programs. Emergency response organizations are responsible for assessing potential risks of exposure to infectious disease in the workplace and for providing appropriate measures to reduce the risks.

Occupational exposure management programs

Prevention is the key component in reducing the risk before and after exposure to an infectious disease.

In order to be effective, the occupational exposure management program for airborne pathogens or blood/bloody body fluids should include all of the following:

a) policies and procedures developed for a specific sector, e.g., ambulance, fire, and police,
b) appropriate personal protective equipment, protective practices, and disinfectants,
c) ongoing education and training of Emergency Responders and Designated Officer [the intermediator between the Emergency Responder and public health* (see Section 5)],
d) a pre-exposure program,
e) a post-exposure program, and
f) partnership with public health.

Pre-exposure program

The pre-exposure programs must include all of the following elements.

a) The emergency response organizations are responsible for setting standards and for providing education, training, and personal protective equipment that includes
   - information on infectious diseases
   - methods of transmission
   - Emergency Responder's assessment of the risk of exposure
   - definition of significant exposure for airborne patho- gens and blood/bloody body fluids
   - disinfection and decontamination procedures
   - appropriate skills to apply preventive measures in all situations (personal protective equipment and protective techniques).

b) Immunization is a key strategy in preventing transmission of certain infectious diseases. All Emergency Responders should be immunized according to the National Advisory Committee on Immunization (NACI) guidelines[2]. Pre-exposure prophylaxis with hepatitis B vaccine is recommended for those persons who are at increased risk of occupational infection, i.e., those exposed to blood/bloody body fluids.
c) Employers have the responsibility to carry out screening for TB if there is a high risk of exposure[3].
d) Personal protective equipment, e.g., masks, should be provided for the appropriate person under risk circumstances, e.g., transport of a masked client with active TB[3].
e) A system of bloodborne pathogen protocols, e.g., the use of appropriate personal protective equipment and protective techniques, needs to be instituted and applied routinely in all emergency situations where there is risk of exposure to blood/bloody body fluids.
f) The emergency response organizations need to have a process in place whereby employees are encouraged to provide their input and assistance in testing personal protective equipment and in developing protective techniques to prevent exposures from new hazardous situations.
g) Emergency response organizations shall respect the confidentiality of individuals as expressed by provincial, territorial, or federal legislation.
h) Emergency response organizations shall respect the right of individuals to work in compliance with the various provincial, territorial, and federal occupational health and safety legislation.

Post-exposure Program[4]

Emergency response organizations must include all of the following essential components in their post-exposure programs. These programs should include the provision to:

a) Provide appropriate and immediate first aid following an exposure to blood/bloody body fluids.
b) Disinfect the contaminated environmental area at the worksite.
c) Establish policies and procedures to implement the Notification Protocol in the event of an occupational exposure to an infectious disease by an Emergency Responder. Recommendations to accomplish this are as follows:

   i. Select a Designated Officer(s) (see Section 5). Preference may be given to occupational health nurses, physicians, or infection control practitioners where these services are available; input from joint health and safety committees, or, in their absence, from Emergency Responders, should be obtained prior to appointing the Designated Officer.

   ii. Establish a training program for the Designated Officer and substitute. This may be in conjunction with public health and other emergency response organizations.

   iii. Facilitate the necessary agreements for a quality post-exposure service including medical services, counselling services regarding pre- and post-HIV, HBV, or HCV testing and psychologic support to Emergency Responders exposed to occupational infections. These services must equally provide the follow-up to document the occupational infections and secondary effects of medications taken post-exposure, e.g., AZT.

   iv. Provide education/training for the Emergency Responders so that they can easily access the Designated Officer following an occupational exposure to an infectious disease.

4. Role of the Emergency Responder in a Notification Protocol

Preamble

The Emergency Responder has an essential role in protecting his/her own health in the execution of all duties.

Responsibilities and Activities of an Emergency Responder

The Emergency Responder should

* For the purposes of this document, Medical Officers of Health, Public Health Directors (Quebec) or other designated public health authorities will be referred to as "public health".

a) work in compliance with the occupational health and safety program,
b) maintain and update his/her immunization status as recommended by NACI,
c) participate in screening programs for TB,
d) participate in the educational and training sessions on prevention of transmission of infectious diseases,
e) wear personal protective equipment and utilize protective procedures as required,
f) use bloodborne pathogen protocols in all situations where the risk of exposure to blood/bloody body fluids may be present (e.g., universal precautions),
g) assist in developing protective procedures to address new or difficult situations that present a potential hazard,
h) initiate procedures outlined in the Notification Protocol after an occupational exposure to an airborne pathogen or blood/bloody body fluids,
i) obtain immediate medical care and treatment following an occupational exposure to an airborne pathogen or blood/bloody body fluids, including counselling pre- and post-HIV, HBV, or HCV testing,
j) ensure that appropriate documentation of the injury/exposure is completed,
k) follow through with appropriate medical care and follow-up surveillance, and
l) assist in problem-solving exposure situations with health and safety committees.

5. Role of the Designated Officer in a Notification Protocol

Preamble

The Designated Officer should be knowledgeable of infectious disease transmission and be capable of providing support to an exposed worker. The occupational health service or department may be given the responsibility to provide this service.

Recommendations

1. Specific individual(s) must be identified to act as the Designated Officer(s) within emergency response organizations. The selection of a Designated Officer should be a joint decision by management and labour.
2. The appointment of a Designated Officer may vary relative to the geographic area, number of employees and diversity of the organization.
3. The Designated Officer should be provided with training (initially and continuing) to enable accurate assessment of situations where an Emergency Responder has been exposed to an airborne pathogen or blood/bloody body fluids.
4. A clear line of communication should be established within emergency response organizations to allow an Emergency Responder easy 24-hour access to the Designated Officer. A quick assessment is needed following a significant exposure to blood containing HIV or HBV. The option to administer zidovudine following an exposure to HIV should be established within hours.
5. The Designated Officer must assess an Emergency Responder's exposure and record the injury. The Designated Officer will contact public health in a timely fashion if the occupational exposure is determined to be significant.
6. The Designated Officer should receive recommendations for appropriate follow-up within 48 hours of contacting public health.
7. The Designated Officer will transmit the recommendations directly to the Emergency Responder.
8. The Designated Officer may assist the Emergency Responder in obtaining the necessary medical follow-up.

6. Role of the Public Health in a Notification Protocol

Preamble

The Public Health Act of each province mandates various public health authorities. One of the roles of medical officers of health or public health directors is to receive notification of infectious diseases from physicians, laboratories, hospitals, and public health units and to ensure appropriate interventions to control further transmission. As the roles of the medical officers of health or public health directors vary between provinces, different authorities may be involved in disease notification.

A Notification Protocol does not replace public health roles; it strives to ensure inclusion of Emergency Responders in established public health procedures for airborne pathogens or blood/bloody body fluids contact tracing loops. It also develops a systematic method for Emergency Responders to obtain information about the appropriate follow-up of an airborne pathogen or blood/bloody body fluid exposures.

Recommendations

1. Each provincial, territorial, and federal agency should review its system of contact tracing to ensure that Emergency Responders are included in the contact tracing loop for both airborne diseases and blood/bloody body fluids, as well as all other notifiable diseases.
2. Public health should have an active role in post-exposure notification of Emergency Responders who have been occupationally exposed to airborne pathogens or to blood/bloody body fluids.
3. Public health will be contacted by the Designated Officer following an assessment of a suspected significant airborne pathogen or blood/bloody body fluid exposure.
4. Public health must review detailed information provided by the Designated Officer.
5. If the exposure is deemed significant, public health will obtain available information about the source person's infectious status, if feasible. Possible sources of information may include the source person, the attending physician, the source person's medical record or the provincial system of notifiable diseases (see Testing in Section 8.7).
6. Public health must ensure that the Designated Officer is provided with appropriate medical follow-up recommendations within 48 hours. Hepatitis B immune globulin, if required, should ideally be offered to a non-immune person exposed to HBV within this time.
7. Public health, while not responsible for training the Designated Officer(s), may provide support to assist emergency response organizations in establishing training programs for the Designated Officer(s) and Emergency Responders.
8. Public health must comply with all existing regulations in the protection of personal information and ensure that confidentiality is respected.

7. Role of the Health Care Facility in a Notification Protocol

Preamble

Health care facilities have a major role to play in the identification and prevention of transmission of infectious diseases.

In general, the following recommendations have been developed for hospitals; however, they may be adapted to other facilities such as nursing homes, correctional facilities, detoxification centres, and jails.

Recommendations

1. Health care facilities must continue to report notifiable diseases by the current mechanism in compliance with the appropriate public health legislation, e.g., if a facility health care provider makes a diagnosis that a client has an infectious airborne disease, the health care facility must review its records to determine if an Emergency Responder was involved in the transport of the client. If yes, the health care facility must notify public health of a potential airborne pathogen exposure involving an Emergency Responder as soon as possible.
2. Health care facilities should develop an administrative policy to facilitate testing for bloodborne pathogens (see Testing in Section 8.7).
3. Health care facilities must develop an administrative mechanism so that information needed by public health regarding an exposure investigation is provided in a timely manner. Twelve hours is a recommended time frame.
4. If transportation of a source person with a suspected or known infectious disease is required, the necessary precautions to prevent further disease transmission must be identified and communicated to all Emergency Responders involved.
5. An Emergency Responder who requires medical care after an occupational exposure should be managed as a patient, understanding that the established procedures for reporting to the Designated Officer and public health must continue to be followed in their entirety.

8. Role of the Policy Makers in a Notification Protocol

Preamble

Policy makers have an active role to play in the development and implementation of a Notification Protocol for Emergency Responders. The process for development and implementation may vary between provincial, territorial, and federal agencies.

The need for governmental structure and involvement may vary between sectors, i.e., ambulance, fire, and police, and between types of organizations within a sector, e.g., voluntary organizations, private organizations, and public agencies.

Policy makers may benefit from referring to the 1994 Ontario Ministry of Health's document "Mandatory Guideline and Protocols for the Notification of Emergency Service Workers".

Recommendations

1. ***Guidelines***
   Each province, territory, and federal agency should develop their own infectious diseases notification protocol for Emergency Responders based on these guidelines. The notification protocol should be one component of a larger occupational health strategy to reduce the risk of occupational infectious disease exposures. The protocol should encompass the ambulance, fire, and police sectors. (The protocol may also include blood exposures of "Good Samaritans".)
2. ***Policy Development***
   The development of necessary policies and procedures may span several government departments. Provincial health departments should assume overall responsibility to ensure that the process is initiated and carried through to completion. Federal agencies should identify ways to interact with provincial and territorial programs where appropriate.
3. ***Participation***
   Policy makers should ensure that all stakeholders are consulted in the process of developing protocols, policies and procedures for the provincial/territorial/federal Notification Protocol for Emergency Responders. This may include participation from employers, employees, unions, government departments, federal agencies, health care providers, health care facility associations, interested community organizations, volunteers, and other interested parties.
4. ***Specific Roles***
   Provincial health ministries should assume overall responsibility in the development and implementation of an appropriate protocol for the notification and follow-up of Emergency Responders who have an occupational exposure to an infectious agent.

   Provincial ministries, through the department responsible for Occupational Health and Safety, should ensure that the Notification Protocol is in place and is communicated to both labour and management. The policy should ensure that Emergency Responders have access to sufficient education and training to enable them to take necessary preventive measures before and after an occupational exposure takes place.

   Provincial and territorial specific policies should ensure that their Notification Protocol is able to address situations where
   - the source person for the infectious disease exposure is not currently involved in the health care system,
   - the source person is in the health care system, and
   - "the source person is unknown/not identifiable.

   Policy makers, through occupational health and safety, should ensure that workers receive adequate education on
   - strategies for disease prevention, including bloodborne pathogens (personal protective equipment and protective techniques),
   - procedures for reporting potential exposure to infectious agents, and
   - procedures to activate the Notification Protocol for airborne pathogen or blood/bloody body fluid exposures.

   Wherever possible, the policy should facilitate communication across jurisdictions, e.g., across provincial, territorial, and national boundaries.
5. ***Implementation***
   Provincial, territorial, or federal policy makers should utilize whatever measures they deem necessary to ensure that minimum standards and requirements are established and imple-

mented for the notification and follow-up of occupational infectious disease exposures to Emergency Responders. These measures may be a matter of regulation, under existing statutes, where feasible and deemed necessary. In jurisdictions where no appropriate statutes exist, the Notification Protocol for Emergency Responders may be implemented as a matter of policy.

6. ***Chain of Command***
   Algorithms may be developed to identify the lines of communication and responsibility for implementation of the protocol under various scenarios.
7. ***Testing***
   Following an Emergency Responder's occupational exposure to blood/bloody body fluids, the need for testing of the source person should be considered by public health, as it would be for workers in health care facilities.
   - *"When significant exposure to blood occurs, it is important to both the health care worker and the institution to know the infectious status of the source patient. In most jurisdictions in Canada, HIV antibody testing requires informed consent, which must be obtained and documented by the attending physician prior to testing. Informed consent in such cases included providing information to the patient about the nature of HIV infection and giving counsel with respect to the possible test result. The process may be lengthy and difficult, and the attending physician may be unwilling to undertake the task. Failure to obtain blood from the patient for HIV antibody testing may mean that a health care worker is subjected needlessly to a prolonged period of anxiety until it can be concluded from repeated serologic testing that the worker has not been infected*[5]."
   - If testing is recommended, informed consent must be obtained from the client by the person chosen by the health care facilities to fulfill this role.
   - It was the consensus of the participants at the meeting that public health ask that the source person be offered testing. The appropriate pre- and post-test counselling needs to ensure informed consent.
   - If testing of the source person is permitted under the Notification Protocol, policy makers should address the following questions:
     - Who can request testing? Why? and When?
     - Who is responsible for approaching the source patient for consent to test? Who provides pre-test and post-test counselling to the source person? Who performs the tests?
     - Who receives the results and what results do they receive?
   - Whether or not testing is done, it is important to identify what type of information is communicated to public health, the Designated Officer or the Emergency Responders [e.g., the Emergency Responder is told about having been exposed to a specific pathogen, e.g., HIV, or an infectious bloodborne pathogen (not named)].
8. ***Confidentiality***
   The Notification Protocol must address issues of right to privacy and confidentiality of health records with specific language that allows the release of appropriate information. Personal information cannot be released without the source person's informed consent. The Designated Officer must maintain confidentiality when dealing with the Emergency Responder.
9. ***Evaluation***
   The Notification Protocol should be evaluated periodically to ensure that Emergency Responders are receiving the appropriate information in a timely manner.

   Policy makers should ensure that appropriate statistics are collected to monitor the incidence of reported exposures and follow-up indicating the incidence of subsequent occupational diseases.

9. Glossary

- **Communicable/infectious/contagious**: capable of being transmitted from one person or species to another, as a communicable disease, infectious. The term infectious is used in this document.
- **Pathogen:** any disease-producing organism.
- **Risk reduction for bloodborne pathogens:** includes using universal precautions.
- **Source person:** the person to whom the Emergency Responder was exposed.

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